

TRAINING NOTES



Advanced Infantry Marksmanship Shooting Better Day and Night

LIEUTENANT COLONEL MICHAEL E. BOATNER

Infantry riflemen—assigned to the rifle platoons of rifle companies—ought to be the Army's best shooters, both day and night. But are they? When the Chief of Infantry, Major General Carl Ernst, asked this question more than a year ago, the Infantry School's 29th Infantry Regiment set out to answer it. When we assessed the effect of new small arms sights and scopes already arriving in field units, we realized that existing standards were no longer challenging enough for infantrymen.

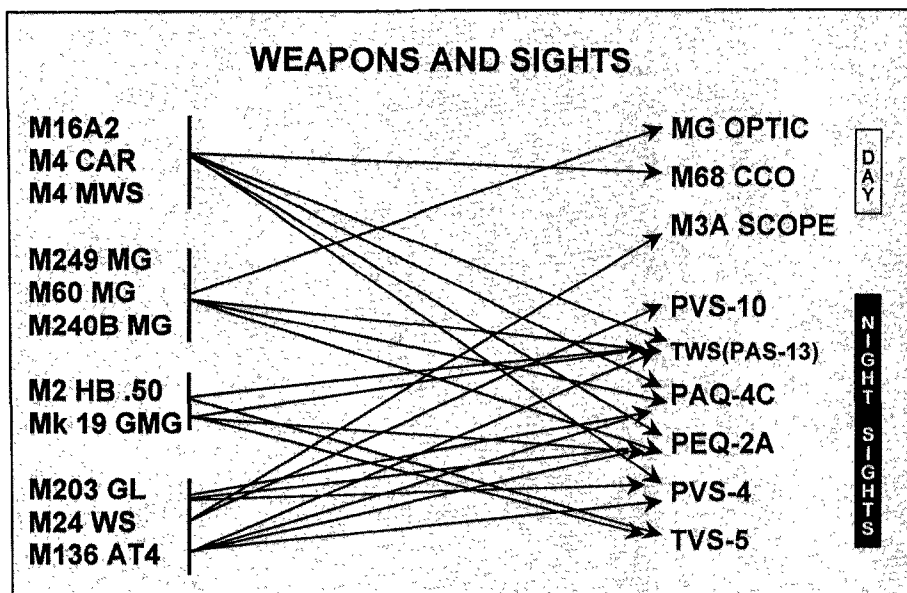
Given the infantry mission to close with and destroy the enemy, combined with the Army's "Own the Night" objectives, we began a program to define new, higher marksmanship standards. Our objective in this program is to provide advanced infantry marksmanship (AIM) training strategies, techniques, and standards that will help infantry trainers and training managers project and resource realistic training requirements.

Individual marksmanship and crew gunnery training programs give infantrymen the technical skills they need to employ their basic weapons. This individual and crew level lethality is an important and measurable prerequisite for collective or unit tactical proficiency. Ideally, trainers establish this technical skill base through training that progresses from classroom instruction

and training devices, through blank and subcaliber fire, to both day and night live fire. Bradley fighting vehicle gunnery has long reflected this approach, including realistic night qualification requirements that are comparable to the day standard. In the mechanized infantry world, with state-of-the-art night vision and engagement systems, units may already be executing gunnery to the day standard at night. The technology gives these units near daytime agility as well as the ability to acquire and engage targets. We routinely integrate, resource, and test this night ability in our gunnery programs.

In contrast, advances in target acquisition and night vision with *light* infantry weapons have not kept pace with the mounted systems. Thus, small arms marksmanship training and formal qualification programs are well structured, but they are primarily daytime requirements with a mix of partially resourced night familiarization training.

This situation is changing, however, and many infantry units are rapidly receiving a variety of optical and aiming devices that improve the infantryman's lethality, both day and night. These include new day optics for rifles and machineguns, laser pointers and illumi-



nators, improved image intensification scopes and goggles, and thermal weapon sights. These new scopes and laser pointers push the capability of small arms almost to their maximum effective ranges at night. This increased potential demands that we elevate the standards of our technical marksmanship training accordingly. *The increasingly attainable goal is to demonstrate that infantrymen can shoot to a higher standard during the day and to the current day standard at night.*

The collective efforts of the Infantry School and Fort Benning units are testing and developing marksmanship training strategies and standards for night marksmanship and new small arms technology. The 29th Infantry Regiment, which is responsible for technical weapons training and marksmanship instruction, sponsored this initiative but incorporated essential contributions of the Basic Combat Training Brigade, the 75th Ranger Regiment, the Dismounted Battlespace Battle Lab, the Directorate of Combat Developments, and the Directorate of Training.

The mission given to the 29th Infantry was based on newly available day sights, night sights, and laser pointers: *Propose day and night training strategies and qualification standards for*

infantry weapon systems based on current and emerging sighting systems.

The goal is to exploit small arms technology to the same degree we have exploited mounted systems. Over the past year, we have tested and captured techniques and procedures for employing this technology in local Fort Benning instruction and also in a draft training circular. The first draft of

The increasingly attainable goal is to demonstrate that infantrymen can shoot to a higher standard during the day and to the current day standard at night.

Training Circular (TC) 23, *Advanced Infantry Marksmanship Strategies and Standards (AIMSS)*, was distributed during the 1998 Infantry Conference to all attending senior commanders and command sergeants major.

Currently, the Infantry School includes the four fundamentals of marksmanship—aiming, steady position, breath control, and trigger squeeze—on every system, stressing repetition and consistency. This establishes each soldier's ability to combine the funda-

mentals in the integrated act of firing for his assigned weapon. These marksmanship programs for each weapon are captured in our Field Manual (FM) 23 series as the Army-wide standard. At the qualification range or marksmanship test, we evaluate the soldier's ability, as an individual, to detect and engage targets at tactically appropriate ranges. We do this in the most likely firing positions, with significant time pressure but with fully visible targets in daylight. Thus, technical marksmanship programs establish whether a soldier can hit what he can see. Our current marksmanship programs do this well for the daylight, static employment of small arms. For more advanced marksmanship skills, however, we lack the strategies, standards, and resources. The Infantry School's goal is to address this shortcoming as quickly as possible for limited visibility engagements. We are also developing training strategies for close quarters engagement (less than 50 meters), and ultimately for integrated small arms engagements at the fire team, squad, and platoon levels.

As we looked at the primary variable that affects performance, we focused on maximizing the potential of the weapons themselves and the soldier training program, using proven techniques of preliminary marksmanship instruction (PMI).

One of the challenges of AIM is that wearing one of these devices, or attaching it to a weapon, clearly affects the fundamentals of marksmanship. Generally, the new sights and laser pointers are night enhancements being fielded to help the infantryman "own the night" by improving his ability to align his sight accurately on a discernible target. This improves the fundamental of *aiming* by a single-point of focus, thus relieving eyestrain and in some cases providing magnification. But scopes and night sights generally hamper target acquisition due to tunnel vision. Also, adding these devices universally changes the conditioned fundamental of *steady position*, sometimes to something less compact and inherently less steady. Although *trigger squeeze* and *breath control* are less af-

SYSTEM RANGES

Range in meters

System	300	400	500	600	800	1000	1500	2000		
MG OPTIC									CREW SERVED	
M68 CCO										M4/M16
M3A SCOPE									M24	
PVS-10										M24
TWS (PAS-13)									SMALL ARMS	
PAQ-4C										INDIV. WPNS
PEQ-2A							NVG w/3X		CREW SERVED	
PVS-4										INDIV. WPNS
TVS-5									CREW SERVED	

fects, they are still important. Training programs must also efficiently train the individual firer to maintain, bore-sight, and configure his assigned equipment, and sustain his proficiency as well.

The challenge of the primary AIM stems from the large number of possible weapon and sight combinations within the squad and platoon. The infantry squad leader of the near future will have several distinct capabilities using thermal, image intensification, and laser technologies. We looked at individual weapons, platoon machineguns, heavy machineguns, and special purpose weapons (SPWs) in the platoon. The maximum ranges of the sighting systems generally match the weapon systems they support under highly favorable light and heat conditions; actual conditions on the range, however, are often variable and hard to predict. For heavy machineguns, especially, the ranges of the PEQ 2A laser pointer/illuminator and the heavy version of the thermal weapons sight (TWS) are more than 2,000 meters. These devices offer tremendous potential for light infantry crew-served weapons and snipers. But across-the-board night vision goggle (NVG) capability (with or without the 3-power extender magnifying lens) limits the employment of laser pointers.

The good news is that we have generally concluded that the primary goal of achieving the day standard at night is feasible. With each system, we developed an initial training strategy to be used when units first receive the equipment, and then a sustainment strategy for subsequent marksmanship and qualification training. Most units, however, will combine these strategies for the indefinite future to meet the needs of newly assigned personnel and gunners with mixed experience in each qualification cycle.

Clearly, the first step is to train and certify leaders with the new equipment. Leaders must thoroughly understand the technical requirements of the training and also assess the adequacy of local training resources to execute advanced infantry marksmanship. Range orientation, weather, target systems, available

ammunition, and training aids will all dramatically affect the execution of this training. Fully resourced leader training, including live fire, will identify any problem areas before unit training begins.

Although few of these systems will include dedicated new equipment training teams (NETT), the Infantry School will continually update training support through doctrinal development, E-mail, and mobile training teams.

Each of our AIM strategies starts with soldiers who are qualified on their assigned weapons during the day with iron sights. This establishes the basic marksmanship fundamentals and each soldier's confidence in his weapon and his own ability.

As with any good weapon training, the preliminary marksmanship instruc-

Each of our AIM strategies starts with soldiers who are qualified on their assigned weapons during the day with iron sights.

tion will make or break the effort. With new sighting devices, PMI will have several components. These include configuring the sight to the weapon, methods of boresighting, adjustments to the marksmanship fundamentals, safety procedures, and in some cases confidence training with night vision goggles. When training the fundamentals, all available training aids, devices, simulators, and simulations should be incorporated, as in all PMI. Just as with the art of manipulating the traversing and elevating mechanism on a machinegun, a soldier's facility with knobs, switch adjustments, and immediate action on the new sights must become second nature.

The transition step between PMI and live fire is a careful, accurate boresight procedure. This is not only key to accuracy but a way to improve a soldier's confidence with his weapon. We found the new boresight device a tremendously effective aid to boresighting the large variety of weapon and sight com-

binations. Although manual methods are adequate, this alignment method greatly simplifies and standardizes the process with most systems. It comes with 5.56mm, 7.62mm, and .50-caliber mandrels to align a visible laser light with a weapon's bore. Then the firer can align his point of aim with his muzzle orientation, using a predetermined offset at a range of 10 meters. For scopes, confirmation of this boresight requires zeroing with bullets, but with laser pointers we have found the borelight allows full accuracy without zeroing. Working with the Dismounted Battlespace Battle Lab, we have confirmed a complete set of borelight offsets for infantry weapons. The device will be available early in Fiscal Year 1999.

The first live fire event for soldiers is normally to zero weapons to their sights. This not only confirms accuracy but also increases confidence and provides the first feedback on the effectiveness of the PMI. In subsequent AIM live fire, target acquisition is the most challenging skill. Each course of fire should build PMI and dry fire exercises that reinforce the modified fundamentals. We found that starting with basic known distance or field fire scenarios, where there is less time pressure, allowed soldiers to adapt thoroughly to new sights and night firing. With practice record fire, we started with extended target exposure times, then reduced them as proficiency increased—leading ultimately to the goal of night qualification to the daylight standard. The AIMSS TC shows our proposals for the minimum course of fire required to achieve a challenging night standard.

For example, with the M16A2 rifle the AIM strategy for the AN/PAQ-4C will require two days for a platoon and three days for a company. The first day consists of extensive PMI to introduce the PAQ-4C and reinforce NVG skills. Optimum fit and adjustment of the goggles is key, and soldiers must be completely comfortable with both goggles and weapon configuration. With goggles on, a soldier's immediate action must be done virtually blind, because adjusting goggles for near vision during firing is not practical. (The new

PVS 14 monocular alleviates this problem.) Extensive, structured dry fire exercises on the range at night will most effectively solidify these skills.

We strongly recommend that all live fires start on the second day; this will ensure that leaders do not curtail PMI and that they also thoroughly confirm resources. Soldiers should prepare to qualify by shooting both known distance and field fire scenarios (36 rounds each), which will establish good target acquisition skills at night. Soldiers should then execute a practice record fire with target exposure times extended by two seconds. Most soldiers will achieve 23 of 40 the first attempt (Marksman) and be ready to move on to record fire to the day standard at night. All soldiers who do not achieve a Marksman skill level should retrain and refire to that standard before moving on and ultimately achieve the standard of Marksman using the day exposure times at night.

With detailed preparation and available ranges, platoons can conduct this live fire training in a single night, but companies should schedule it for at least two nights.

With platoon machineguns (M249 and M60/M240), the proposed training strategy is similar to the day transition fire. After an initial day and night of

detailed PMI and structured dry fire, units should begin with field firing tables that incorporate extended target exposure times. Unfortunately, we found that the limitation of night vision technology affected performance most for these systems. Realistically, soldiers need an additional five seconds of exposure over the day standard to engage targets at appropriate ranges, and then can acquire targets only out to 600 meters. Relatively small targets (E-type and multi-E type) at 400 to 800 meters are extremely hard to discern with goggles and low magnification sights, even when enhanced. Also, laser dots and reticle lines effectively expand to obscure the target at these ranges. Thus, we recommend a machinegun night standard with five seconds of additional exposure time and out to only 600 meters for 7.62mm systems.

In conclusion, we used the AIMSS training circular to propose standards, based on our live fire experience for validation in the field. Infantry units should adopt challenging standards for these systems as they are fielded and provide feedback to the School for inclusion in the FM 23 series of manuals. In the interim, we recommend that for readiness reporting, infantry units require at least 90 percent of assigned infantrymen to qualify as Sharpshooters

in the day and Marksmen to the day standard at night. Eighty percent of the crew-served weapon and special purpose gunners should attain a challenging, day comparable standard at night.

We acknowledge that initially this will require up to 50 percent more STRAC authorizations, but we are taking actions to validate these legitimate requirements in subsequent STRAC updates. In the meantime, our infantrymen need to be our Army's most proficient shooters and masters of the technological tools, which will give them a decided advantage in the next conflict.

For more information or TC 23-AIMSS, contact Commander, 2d Battalion, 29th Infantry Regiment, ATTN: S-3, CPT Sonner, Bldg. 74, Fort Benning, GA 31905. E-mail SonnerM@benning.army.mil or RonneyL@benning-emh2.army.mil.

Lieutenant Colonel Michael E. Boatner commanded the 2d Battalion, 29th Infantry Regiment, which is responsible for small arms technical training and marksmanship for individual through heavy crew-served weapons. He is now assigned to the Center for Land Warfare, Office of the Chief of Staff of the Army. He is a 1979 graduate of the United States Military Academy.
